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Nasal Interactions and Bantu Vowel-Initial Roots; The Morphological or Phonological Solution?*

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1. Introduction

In many Bantu languages, synchronic vowel-initial roots (henceforth V-initial roots) have been created by the operation of an historical rule which deleted a consonant in root-initial position. However, it is often the case that the reflex of that historical consonant continues to surface when a nasal prefix precedes the root. This is schematicized in (1):

(1) *C → Ø / V ___ V while *N-CV → NCV

As a result, the following synchronic surface alternations may exist for V-initial roots: NCV_1 / $-V_1$. These alternations pose an interesting problem of analysis: are they best described in terms of a morphological-type spelling rule (in which /N + V/ is spelled as surface NCV), or are they best described in terms of a more abstract phonological analysis? The phonological analysis would insert a consonant (at some stage in the derivation) between the nasal prefix and the initial vowel of the root, and allow the nasal interaction rules of the language to derive the correct surface forms. The phonological solution may be abstract in the sense that the inserted consonant may or may not actually surface, due to the application of subsequent rules affecting nasals or nasal-consonant clusters, which neutralize or alter the inserted consonant.

Although this problem is a quite general one in Bantu, the discussion will be restricted to the OluTsootso dialect of (Olu) Luhya, a Bantu language spoken in Kenya.[1] There is compelling evidence in favor of the abstract phonological solution as the correct description of nasal interactions with V-initial roots in that language.

2. V-Initial Roots and Nasal Interactions

We can begin by examining the alternations of V-initial roots. Listed in (2) are some V-initial nouns and adjectives in non-nasal and nasal contexts:

(2)	/olu-ika/	→ olwiika 'horn'	/tsiN-ika/	→ tsiinzika 'horns'
	/olu-imbo/	→ olwiimbo 'song'	/tsiN-imbo/	→ tsiiñimbo 'songs'

/omu-uchi/ → omuuchi 'sharp (cl. 3)' /iN-uchi/ → inzuchi 'sharp (cl. 9)'
/ama-angu/ → amaangu 'light (cl. 6)' /tsiN-angu/ → tsiiñangu 'light (cl. 10)'

Some verbal V-initial roots are listed in (3) in nasal contexts:

(3)

/aβul/	/eN-aβul-a-ng-a/ → enzaβulaanga	I split
	/N-aβul-á/ → nzaβulá	Split me
/iβ/	/eN-iβ-a-ng-a/ → enziβaanga	I steal
	/N-iβá/ → nziβá	Steal me
/eng/	/eN-eng-a-ng-a/ → eñengaanga	I ripen
	/N-eng-il-á/ → ñenjelá	Ripen for me
/um-i/	/eN-um-i-ng-i-a/ → eñumiinjia	I dry
	/N-um-i-á/ → ñumíá	Dry me

The examples in (2) and (3) show that V-initial roots surface as nzV or ñV when preceded by a nasal underlyingly.

3. Y-Initial Roots and Nasal Interactions

Before we attempt to formulate the above interactions, let us consider some y-initial noun and adjective roots:

(4)

/axa-yofu/ → axayofu 'elephant (dim.)' /iN-yofu/ → inzofu 'elephant'
/axa-yuundo/ → axayuundo 'hammer (dim.)' /iN-yuundo/ → iñuundo 'hammer'
/omu-yiinda/ → omuyiinda 'rich (cl. 1)' /iN-yiinda/ → iñiinda 'rich (cl. 9)'
/omu-yu/ → omuyu 'warm (cl. 3)' /tsiN-yu/ → tsiinzu 'warm (cl. 10)'

Verbal y-root initial roots in nasal contexts are listed below:

(5)

/yaβil/	/eN-yaβil-a-ng-a/ → enzaβilaanga	I bury
	/N-yaβil-á/ → nzaβilá	Bury me
/yoomb/	/eN-yoomb-a-ng-a/ → eñoombaanga	I surpass
	/N-yoomb-á/ ñoombá	Suprass me

/yeel/	/eN-yeel-a-ng-a/	I land
	→ enzeelaanga	
	/N-yeel-il-á/	Land for me
	→ nzeelelá	
/yeeng/	/eN-yeeng-a-mg-a/	I ferment
	→ eñeengaanga	
	/N-yeeng-il-á/	Brew for me
	→ ñeenjelá	

As the data above show, a rule taking y to z when a nasal precedes is indicated. A similar rule exists in certain Latin American Spanish varieties, and is not unmotivated phonetically.[2] The appearance of ñ is apparently due to the application of the synchronic reflex of the Ganda Law, a nasal cluster simplification rule.[3] This rule seems to apply in OluTsootso to l and y, when these are preceded by a nasal prefix and followed by a nasal or nasal cluster in the following syllable. The nasal prefix assimilates to the point of articulation of the l or y, and surfaces as alveolar n or palatal ñ; the l or y is deleted. Thus, the interactions of nasals with y-initial roots can be described in terms of phonetically plausible and well-motivated rule-governed phenomena.

4. Arguments and Analysis of Nasal Interactions

We can now turn to the question of formulating the nasal interactions of V-initial roots. In terms of the descriptive devices mentioned in the introduction, we could propose that the underlying /N + V/ sequence be spelled as surface nzV or ñV (the morphological spelling solution). The alternative abstract phonological analysis would be to insert a y between the nasal and the initial V of the root, and allow the nasal interaction rules of section 3 to derive the surface nzV or ñV. The following are arguments in favor of the abstract phonological solution in OluTsootso.

4.1.

Prima facie evidence is in favor of the abstract phonological solution, since nasals condition identical surface alternations in a fair range of morphological contexts for both y-initial and V-initial roots. A grammar with a rule of y-insertion captures the similarity in distribution of nz and ñ.

Under the spelling-rule analysis, the derivation of surface ñ V is somewhat problematical. Specifying that ñ appears when a nasal is in the following syllable obviously duplicates the effect of the synchronic Ganda Law, which is already independently motivated for the y-initial roots. In addition, there are rare and apparently idiosyncratic instances in which ñ or nz surface when n is the nasal in the following syllable. This is illustrated in (6), where the verb roots /an/ and /in/ surface with either nz or ñ when a nasal precedes:

(6)	/an/	/eN-an-a-ng-a/	→ e-ñ-ananga (nz)	'I "moo"'
	/in/	/N-in-i-á/	→ ñ iníá (nz)	'Dip me'

Other V-initial verb roots of the form /-Vn.../ do not show such fluctuation, but surface with ñ, and not nz:

(7)	/anix/	/eN-anix-a-ng-a/	→ eñanixaanga	'I put out'
	/onoon-i/	/N-onoon-i-á/	→ ñonoonía	'Spoil me'

Now, notice that a similar discrepancy exists for y-initial roots in (8), where a verbal form /yiin-i/ shows fluctuation, whereas the noun root surfaces with ñ only:

(8)	/yiin-i/	/eN-yiin-i-ng-i-a/	→ e- ñ -iiniinjia nz	'I remove'
	/yani/	/iN-yani/	→ iñani	'baboon'

The point is that the spelling analysis would have to state the discrepancies in these cases twice--once for V-initial roots and again for y-initial roots, whereas the abstract phonological analysis predicts that both groups or roots would be subject to similar discrepancies.

4.2. Another argument in favor of the abstract phonological solution comes from the behaviour of vowels undergoing the rule of Prenasal Cluster Lengthening (henceforth PNCL). The PNCL rule can be shown to account for the long vowels appearing in (a) the surface forms of the class 10 noun prefix /tsiN/; and (b) the vowels preceding the object marker /N/. A few examples are given in (9):

(9)	/tsiN-ßoolo/	→ tsiimboolo	'languages'
	/tsiN-siche/	→ tsiisiche[4]	'locusts'
	/oxu-N-chiinga/	→ oxuunjiinga	'to carry me'
	/oxu-N-seena/	→ oxuuseena[4]	'to trample me'

Now, if we examine similar cases where a V-initial root is involved, we notice that again the vowels preceding the nasals are lengthened.[5] Notice in particular the forms given in (10):

(10)	/tsiN-embe/	→ tsiiñembe	'razors'
	/tsiN-umu/	→ tsiiñumu	'dry (cl. 10)'
	/oxu-N-imba/	→ oxuuñimba	'to sing me (my praises)'
	/oxu-N-eng-il-a/	→ oxuuñenjela	'to ripen for me'

Under the spelling rule analysis, it must be calimed that vowels are lengthened before ñ. But elsewhere in the language, ñ does not behave like a nasal cluster. First, there are no nasal-cluster-initial verb-roots in the language, but numerous ñ-initial verb roots exist.[6] Secondly, ñ does not condition PNCL elsewhere, but

if it were a nasal cluster, it should do so automatically. Thus, the lengthening of vowels before ñ in the forms of (10) will have to be the result of a special rule under the spelling analysis.

With the abstract phonological analysis, the lengthened vowels in (10) would be the result of PNCL, since once the y is inserted, a nasal cluster exists:

(11)	underlying form	/tsIn-embe/	/oxu-N-imba/
	y-insertion	tsiN-y-embe	oxu-N-y-imba
	PNCL	tsiiN-y-embe	oxuuN-y-imba
	synchronic Ganda Law	tsiiñembe	oxuuñimba

4.3. The evidence from the imperative paradigm is quite compelling in favor of the abstract phonological solution, and consists of more superficial evidence. Consider the formation of the 'simple' (i.e., affirmative, singular, non-prefixed) imperative, which consists of the root plus final -a:

(12)	/ßaamb-a/	→	ßaamba	'sacrifice'
	/met-a/	→	meta	'Blink'
	/yaßil-a/	→	yaßila	'Bury'

Interestingly, V-initial roots surface in this paradigm with a y-inserted in initial position, with final -a:

(13)	/iß-a/	→	yißa	'Steal'
	/el-a/	→	yela	'Select'
	/anz-a/	→	yanza	'Arrange'
	/os-i-a/	→	yosia	'Wash up'
	/um-a/	→	yuma	'Dry'

Now, when imperatives are preceded by an object prefix, final accented e shows up, and not a:

(14)	/shi-ßaamb-é/	→	shißaambé	'Sacrifice it (cl. 7)'
	/lu-chiing-é/	→	luchiinjé	'Carry it (cl. 11)'
	/mu-ßis-i-é/	→	mußisíé	'Make him pass'

But as we have seen in numerous examples in (3) and (5) above, when imperatives are preceded by the object infix /N/, final accented á surfaces. It would seem then that prefixed imperatives are split into two groups: /N/-prefixed imperatives which end in á, and all other prefixed imperatives, which end in é. Notice now that there is a similarity between /N/-prefixed imperatives and the 'simple' imperatives in that both have final a. It seems reasonable to assume that given this similarity, and the fact that /N/-prefixed imperatives are exceptional vis-a-vis other prefixed imperatives, speakers could construct /N/-prefixed imperatives in the following way: take the 'simple' imperative form (with final -a)

and prefix /N/. Now, in the case of V-initial roots, the 'simple' imperative has a clearly inserted y, as (13) shows. And /N/-prefixed imperatives of V-initial roots surface with nzV or ñV. Notice therefore that in constructing these imperatives, speakers can tie together the following: (i) V-initial roots; (ii) a rule of y-insertion for V-initial roots (to construct the 'simple' imperative); (iii) an underlying nasal prefix; (iv) the surface appearance of nzV or ñV. This paradigm then provides evidence that an inserted y can be involved in the derivation of surface nzV and ñV from underlying /N/ plus V-initial root; this is the thrust of the abstract phonological analysis.

5. Discussion and Conclusion

It seems reasonable to conclude that the abstract phonological analysis can be well motivated for OluTsootso. The alternative spelling rule analysis involves a duplication of conditions on rules, and the postulation of otherwise unnecessary and unmotivated rules. The abstract phonological analysis captures generalizations, avoids duplication and unnecessary rules and conditions, and receives surface support from the imperative paradigm.

It is not the case that such a solution should be proposed for all Bantu languages with such alternations. Preliminary investigations of languages like Lomongo (Hulstaert 1961) and Lala-Wisa (Madan 1908) indicates that an abstract analysis for the nasal interactions with V-initial roots would be quite difficult to motivate. On the other hand, the nasal interactions in languages like UbuLamba (Doke 1938), Mwera (Harries 1950) and Lunyankole (Morris 1957) are reasonable candidates for an abstract phonological solution of the type proposed for OluTsootso. Of course, the exact details of these analyses may differ, and a more intense investigation of the languages than is possible from grammars is a prerequisite to any decision as regares the two solutions.

It is quite possible that languages will differ with respect to (a) how much evidence can be found for either analysis and (b) what kinds of facts will constitute actual evidence in favor of one solution or the other. For instance, the appearance of the inserted consonant in a non-nasal form paradigmatically related to a form involving a nasal is the type of evidence indicating the likelihood of the abstract analysis.[7] On the other hand, a consonant appearing after a nasal and before a V-initial root with no further alternations or no analogue elsewhere in the language would indicate that a spelling analysis be adopted.[8] Much more work would have to be done before a decision procedure could be incorporated into the metatheory of phonological investigations, but it would seem that these kinds of interactions would be a fertile testing ground for the development of such hypotheses regarding the correct description of the nasal interactions of V-initial roots.

Footnotes

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[1]Guthrie's zone E 32 b.

[2]This rule is y → ʒ N__, and accounts for the pronunciation of /en-yeso/ as enʒeso, 'in plaster, in a cast'.

[3]Also called Meinhof's Law, this rule has been schematicized as NCVNC → NVNC.

[4]The nasals in these examples have been deleted via a nasal deletion rule which applies after the PNCL rule.

[5]One might question why the class 10 prefix is postulated as underlying /tsiN/ and not /tsiiN/, since it surfaces with a long vowel before both C-initial and V-initial roots. Arguments for the position taken in this paper are given in my thesis, under preparation.

[6]Only one nasal cluster-initial noun root exists, the omnipresent root for 'person' /ndu/. This root does condition PNCL: /omu-ndu/ → omuundu 'person'; /aβa-ndu/ → aβaandu 'people'. Contrast the ñ-initial root: /ñaas-i/: /omu-ñaas-i/ → omuñaasi 'troublemaker'; /aβa-ñaas-i/ → aβañaasi 'troublemakers'.

[7]This is the situation found in Lunyankole (cf. Morris 1957: 54, 83, 236ff.)

[8]This seems to be the situation in Lomongo (cf. Hulstaert 1961:106).

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